Claims

1. (currently amended) An ~~organized~~ array of ~~metal~~ gold clusters, comprising:

monodispersed, 11-mercaptoundeconic acid ligand-stabilized ~~metal~~ gold clusters having metal-cluster radiuses of from about 0.7 nm to about 1.8 nm~~, the metal being selected from the group consisting of Ag, Au, Pt, Pd and mixtures thereof~~;

a ~~linear, biomolecular~~ polylysine scaffold, the metal clusters being bonded to the scaffold; and

a substrate, the scaffold being coupled to the substrate ~~at predetermined positions to form organized, one-dimensional arrays that are electrically isolated from one another and having a linear increase in current above a threshold in applied voltage~~.

2. (currently amended) The array according to claim 1 wherein the scaffold ~~comprises molecules selected from the group consisting of polynucleotides, polypeptides, and mixtures thereof~~ has a lateral definition of about 10 Å.

3. (currently amended) The array according to claim 2 wherein the scaffold comprises ~~polypeptides capable of forming α helices~~ an α helix.

4. (new) An array of metal clusters, comprising:

a substrate;

monodispersed, thiol-stabilized gold clusters having metal-cluster radiuses of from about 0.7 nm to about 1.8 nm; and

a polylysine scaffold having a lateral definition of about 10 Å coupled to the substrate, the metal clusters being coupled to the scaffold and the scaffold being coupled to the substrate at predetermined positions.

5. (new) An array, comprising:

a substrate;

a polylysine scaffold coupled to the substrate; and

gold clusters coupled to the scaffold, the gold clusters having at least one thiol ligand coordinated thereto, and having metal-cluster radiuses of from about 0.7 nm to about 1.8 nm.

6. (new) The array of claim 5, wherein the gold clusters are electrostatically coupled to the scaffold.

7. (new) The array of claim 5, wherein the thiol ligand comprises an aryl group, an alkyl group, or both.

8 (new) The array of claim 7, wherein the thiol ligand is selected from octadecyl thiol, mercaptobiphenyl and combinations thereof.

9. (new) The array of claim 8, wherein the thiol ligand comprises an acidic group.

10. (new) The array of claim 9, wherein the acidic group is a carboxylic acid group.

11. (new) The array of claim 10, wherein the thiol ligand is selected from thiopropionic acid and mercaptoundecanoic acid.

12. (new) The array of claim 5, wherein the substrate comprises silicon, silicon nitride, ultraflat glass, gold or a combination thereof.

13. (new) The array of claim 5, wherein the scaffold has a lateral definition of about 10 Å.